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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,413	11/05/2001	Shuji Yoneda	15162/04160	6864

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EXAMINER

KOVALICK, VINCENT E

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/993,413	Applicant(s) YONEDA ET AL.	
	Examiner Vincent E. Kovalick	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,9-11 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-6,9-11,15 and 17-20 is/are allowed.
- 6) ☒ Claim(s) 14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Applicant's Preliminary Amendment and Request for Continued Examination, both dated December 19, 2005, in response to USPTO Office Action dated September 7, 2005.

The cancellation of claims 2, 7-8 and 12-13; the amendments to claims 1, 5, 10 and 14; and the addition of new claims 15-20 have been noted and entered in the record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hebiguchi et al. (USP 6,184,853) taken with Nagai et al. (USP 5,091,557) in view or Kanno et al. (USP 5,172,107) and further in view of Ozawa et al. (USP 6,501,454) taken with Fujiwara et al. (USP 6,052,1030) in view of Onshi et al. (PSU 5,814,378).

Relative to claim 1, Hebiguchi et al. **teaches** a method of driving a display device (col. 1, lines 15-67; col. 2, lines 1-67 and col. 3, lines 1-15); Hebiguchi et al. further **teaches** a liquid crystal display (LCD) apparatus comprising: a liquid crystal display element composed of a liquid crystal layer and having a plurality of pixels arranged in a matrix form (col. 4, lines 30-63 and

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Fig. 1); and a driver for dividing one frame into at least four fields and interlace-scanning the at least four fields (col. 12, lines 1-12 and col. 13, lines 6-10).

Hebiguchi et al. **does not teach** said liquid crystal layer including liquid crystal material having memory property and exhibiting a cholesteric phase at room temperate; and wherein said driver drives the respective fields composing one frame so that a scanning order of the fields is non-sequential at least once, and wherein said driver drives scanning lines by means of a driving waveform having a reset period for resetting a state of said liquid crystal material, a selection period for selecting a final display state of said liquid crystal material. and a maintaining period for establishing the state selected during the selection period; and wherein an optical absorption layer arranged behind said liquid crystal layer; and wherein said liquid crystal layer exhibits a transparent state unless the maintaining period terminates.

Nagai et al. **teaches** liquid crystal properties (col. 2, lines 50-67 and col. 3, lines 1-17); Nagai et al. further **teaches** said LCD apparatus wherein the liquid crystals included in said LCD element have memory property (col. 9, lines 23-27); and further **teaches** said LCD apparatus wherein said liquid crystals show a cholesteric phase at room temperature (col. 15, lines 51-54).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to make available to the device as taught by Hebiguchi et al. the feature as taught by Nagai et al. in order to provide a LCD element with desirable memory properties thereby reducing the power consumption necessary to hold the said LCD element at a desires state.

Hebiguchi et al. taken with Nagai et al. **does not teach** ; said LCD wherein said driver drives the respective fields composing one frame so that a scanning order of the fields is non-sequential at least once, and wherein said driver drives scanning lines by means of a driving waveform

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having a reset period for resetting a state of said liquid crystal material, a selection period for selecting a final display state of said liquid crystal material. and a maintaining period for establishing the state selected during the selection period; and wherein an optical absorption layer arranged behind said liquid crystal layer; and wherein said liquid crystal layer exhibits a transparent state unless the maintaining period terminates.

Kanno et al. **teaches** a LCD for scanning multiple fields in a frame in a non-sequential manner (col. 3, lines 23-68 and col. 4, lines 1-12). Kanno et al. further **teaches** said driver drives the respective fields composing one frame so that a scanning order of the fields is non-sequential at least once (col. 7, lines 34-41; col. 8, lines 3-23 and Figs. 3C and 4C).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. taken with Nagai et al. the feature as taught by Kanno et al. in order to provide a sub-picture without line flicker through one-field skipping. Hebiguchi et al. taken with Nagai et al. in view of Kanno et al. **does not teach** wherein said driver drives scanning lines by means of a driving waveform having a reset period for resetting a state of said liquid crystal material, a selection period for selecting a final display state of said liquid crystal material. and a maintaining period for establishing the state selected during the selection period; and wherein an optical absorption layer arranged behind said liquid crystal layer; and wherein said liquid crystal layer exhibits a transparent state unless the maintaining period terminates.

Ozawa et al. **teaches** a LCD driving method for driving an apparatus using the LCD (col. 2, lines 32-65; col. 3, lines 1-65 and col. 4, lines 1-57); Ozawa et al. further **teaches** a LCD wherein said drive drives scanning lines by means of a driving waveform having a reset period for

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resetting a state of liquid crystals, a selection period (T3) for selecting a final display state of the liquid crystals, and a maintaining period (T4) for establishing the state selected at the selection period (col. 8, lines 37-67 and Fig. 4).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. taken with Nagai et al. in view of Kanno et al. the feature as taught by Ozawa et al. in order to provide a driving method in which various types of display patterns can be displayed with a predetermined driving voltage margin being maintained and power consumption being prevented from increasing, (Ozawa et al. col. 2, lines 32-38).

Hebiguchi et al. taken with Nagai et al. in view of Kanno et al. and further in view of Ozawa et al. **does not teach** wherein an optical absorption layer arranged behind said liquid crystal layer; and wherein said liquid crystal layer exhibits a transparent state unless the maintaining period terminates.

Fujiwara et al. **teaches** a LCD device and driving method thereof (col. 3, lines 9-67 and col. 4, lines 1-67): Fujiwara et al. further **teaches** wherein an optical absorption layer arranged behind said liquid crystal layer (col. 2, lines 63-67 and col. 3, lines 1-6).

It would have been obvious a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. taken with Nagai et al. in view of Kanno et al. and further in view of Ozawa et al. the feature as taught by Fujiwara et al. in order to provide the means for improving the viewing angle characteristic of the liquid crystal display device.

Hebiguchi et al. taken with Nagai et al. in view of Kanno et al. and further in view of Ozawa et al. taken with Fujiwara et al. **does not teach** said LCD wherein said liquid crystal layer

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exhibits a transparent state unless the maintaining period terminates.

Onishi et al. **teaches** a Liquid Crystal Display device using a polymerizable compound: Onishi et al. further teaches wherein said liquid crystal layer exhibits a transparent state unless the maintaining period terminates (col. 1, lines 27-29).

It would have been obvious a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Hebiguchi et al. taken with Nagai et al. in view or Kanno et al. and further in view of Ozawa et al. taken with Fujiwara et al. the feature as taught by Onishi et al. in order to provide a LCD device that has an excellent response time and voltage transmittance characteristics and yet is sufficiently bright when no voltage is applied.

Regarding Claim 16 Hebiguchi et al. taken with Nagai et al. in view or Kanno et al. and further in view of Ozawa et al. taken with Fujiwara et al. the feature as taught by Onishi et al. **does not teach** a LCD apparatus wherein said driver applies a voltage having an absolute value greater than 0 volts on said liquid crystal layer during said maintaining period; said procedure being in common practice in an image displaying device..

Because said procedure is in common practice and well known in the art, it would have been obvious a person of ordinary skill in the art at the time of the invention to include said procedure in the device as taught by Hebiguchi et al. taken with Nagai et al. in view or Kanno et al. and further in view of Ozawa et al. taken with Fujiwara et al. in view of Onishi et al. in order to provide a LCD device with the means to hold the displayed image at a specific level during the maintenance period.

Allowable Subject Matter

5. Claims 1, 3-6, 9-11, 15 and 17-20 are allowed.

The following is an examiner's statement of reasons for allowance:

Relative to claims 1, 10 and 17, the major difference between the teachings of the prior art of record (USP 6,184,853, Hebiguchi et al.; USP 5,172,107, Kanno et al. and USP 6,501,454, Ozawea et al.) and that of the instant invention is that said prior art of record **does not teach** a Liquid Crystal Display apparatus comprising a liquid crystal display element composed of a liquid crystal layer and having a plurality of pixels arranged in a matrix form, said liquid crystal layer including liquid crystal martial having a memory property and exhibiting a cholesteric phase at room temperature; wherein a driver drives respective image fields composing one frame so that a scanning order of the fields is non-sequential at least once, so as to suppress generation of a stripe pattern due to black out.

.Regarding claim 5, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the LCD apparatus wherein the driver scans the scanning lines according to the equation " $S = a + nk$ ", where "S" is the scanning lines to be driven; "a" is a variable number with an initial value of "one"; "n" is a variable number with an initial value of "zero", and "k" is in integer of not less than 2.

Response to Applicant's Remarks

6. With the allowance of independent claims 1, 5, 10 and 17, applicant's remarks relative to said claims 1, 5 10 and 17 and their respective dependent claims 3-4, 6, 8 15; 11 and 18-20 are rendered moot.

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The introduction of new prior art used in the rejection of claim 14, renders Applicant's remarks relative to claim 14 moot.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	6,414,666	Yamakawa et al.
U. S. Patent No.	5,754,153	Mizutome et al.
U. S. Patent No.	5,734,367	Tsuboyama et al.
U. S. Patent No.	5,726,679	Kanno et al.

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To Respond

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669.


The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Vincent E. Kovalick
March 16, 2006



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